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WPI Acc no: 1998-364764/199832 XRPX Acc No: N1998-284894

**Method of controlling degree of access to operating system resource for software program on computer - involves examining file associated with software program to determine degree of system-level access available to software program when software program is being executed by computer**

Patent Assignee: SUN MICROSYSTEMS INC (SUNM)

Inventor: BYRNE S B; NAGARATNAM N; BERN S B; NAGALEITNAM N

Patent Family ( 12 patents, 30 countries )							
Patent Number	Kind	Date	Application Number	Kind	Date	Update	Type
EP 853279	A2	19980715	EP 1997310659	A	19971230	199832	B
JP 10254783	A	19980925	JP 199835321	A	19980109	199849	E
CN 1194411	A	19980930	CN 1998100223	A	19980109	199907	E
KR 1998070410	A	19981026	KR 1998332	A	19980109	199953	E
TW 368635	A	19990901	TW 1998100158	A	19980107	200034	E
US 6317742	B1	20011113	US 1997780823	A	19970109	200173	E
SG 85092	A1	20011219	SG 19974729	A	19971230	200214	E
EP 853279	B1	20060920	EP 1997310659	A	19971230	200665	E
DE 69736697	E	20061102	DE 69736697	A	19971230	200675	E
			EP 1997310659	A	19971230		
KR 551333	B1	20060818	KR 1998332	A	19980109	200714	E
CN 1313951	C	20070502	CN 1998100223	A	19980109	200758	E
DE 69736697	T2	20070913	DE 69736697	A	19971230	200761	E
			EP 1997310659	A	19971230		

Priority Applications (no., kind, date): US 1997780823 A 19970109; EP 1997310659 A 19971230

Patent Details						
Patent Number	Kind	Lan	Pgs	Draw	Filing Notes	
EP 853279	A2	EN	21	8		
Regional Designated	AL AT BE CH DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI					

States,Original					
JP 10254783	A	JA	63		
TW 368635	A	ZH			
SG 85092	A1	EN			
EP 853279	B1	EN			
Regional Designated States,Original			DE FR GB NL		
DE 69736697	E	DE		Application	EP 1997310659
				Based on OPI patent	EP 853279
KR 551333	B1	KO		Previously issued patent	KR 9870410
DE 69736697	T2	DE		Application	EP 1997310659
				Based on OPI patent	EP 853279

#### Alerting Abstract EP A2

The method involves defining a degree of access to the operating system resources for the software program. A file associated with the software program is examined to determine the degree of system-level access available to the software program when the software program is being executed by the computer. The software program is executed on the computer and a program instruction associated is intercepted with the software program when the software program is being executed on the computer. If the program instruction includes an operation that is outside the degree of system-level access available to the software program is determined. The program instruction is executed when it is determined that the software program has permission to access system-level resources associated with the computer that are within the degree of system-level access available to the software program.

**Title Terms** /Index Terms/Additional Words: METHOD; CONTROL; DEGREE; ACCESS; OPERATE; SYSTEM; RESOURCE; SOFTWARE; PROGRAM; COMPUTER; FILE; ASSOCIATE; DETERMINE; LEVEL; AVAILABLE; EXECUTE

#### Class Codes

International Patent Classification					
IPC	Class Level	Scope	Position	Status	Version Date
G06F-015/16; G06F-009/06			Main		"Version 7"
G06F-0012/14	A	I	F	R	20060101
G06F-0013/00	A	I		R	20060101
G06F-0013/00	A	I	L		20060101

G06F-0015/16	A	I	F	B	20060101		
G06F-0017/00	A	I		R	20060101		
G06F-0017/00	A	I	F		20060101		
G06F-0021/22	A	I	L	R	20060101		
G06F-0021/24	A	I	L	R	20060101		
G06F-0009/445	A	I	L	R	20060101		
G06F-0009/46	A	I		R	20060101		
G06F-0009/46	A	I	F		20060101		
G06F-0009/46	A	I	F	B	20060101		
G06F-0012/14	C	I	F	R	20060101		
G06F-0013/00	C	I		R	20060101		
G06F-0013/00	C	I			20060101		
G06F-0015/16	C	I	F	B	20060101		
G06F-0017/00	C	I		R	20060101		
G06F-0017/00	C	I			20060101		
G06F-0021/00	C	I	L	R	20060101		
G06F-0021/22	C	I	L	R	20060101		
G06F-0009/445	C	I	L	R	20060101		
G06F-0009/46	C	I		R	20060101		
G06F-0009/46	C	I		B	20060101		

US Classification, Issued: 707010000, 713200000, 707009000

File Segment: EPI;

DWPI Class: T01

Manual Codes (EPI/S-X): T01-F02C; T01-F05G5

### Original Publication Data by Authority

#### China

**Publication No.** CN 1194411 A (Update 199907 E)

Publication Date: 19980930

Assignee: SUN MICROSYSTEMS INC; US (SUNM)

Language: ZH

Application: CN 1998100223 A 19980109 (Local application)

Priority: US 1997780823 A 19970109

Original IPC: G06F-17/00(A) G06F-13/00(B)  
Current IPC: G06F-13/00(R,A,I,M,EP,20060101,20051206,A) G06F-13/00(R,I,M,EP,20060101,20051206,C) G06F-17/00(R,I,M,EP,20060101,20051206,A) G06F-17/00(R,I,M,EP,20060101,20051206,C)

**Publication No.** CN 1313951 C (Update 200758 E)

Publication Date: 20070502

Assignee: SUN MICROSYSTEMS INC; US (SUNM)

Inventor: NAGALEITNAM N

BERN S B

Language: ZH

Application: CN 1998100223 A 19980109 (Local application)

Priority: US 1997780823 A 19970109

Original IPC: G06F-13/00(I,CN,20060101,A,L) G06F-13/00(I,M,98,20060101,C) G06F-17/00(I,CN,20060101,A,F) G06F-17/00(I,M,98,20060101,C)

Current IPC: G06F-13/00(A,I,CN,20060101,A,L) G06F-13/00(I,M,98,20060101,C) G06F-17/00(I,CN,20060101,A,F) G06F-17/00(I,M,98,20060101,C)

## Germany

**Publication No.** DE 69736697 E (Update 200675 E)

Publication Date: 20061102

Language: DE

Application: DE 69736697 A 19971230 (Local application)

EP 1997310659 A 19971230 (Application)

Priority: US 1997780823 A 19970109

Related Publication: EP 853279 A (Based on OPI patent )

Original IPC: G06F-9/46(I,DE,20060101,A,F)

Current IPC: G06F-9/46(I,DE,20060101,A,F)

**Publication No.** DE 69736697 T2 (Update 200761 E)

Publication Date: 20070913

Language: DE

Application: DE 69736697 A 19971230 (Local application)

EP 1997310659 A 19971230 (Application)

Priority: US 1997780823 A 19970109

Related Publication: EP 853279 A (Based on OPI patent )

Original IPC: G06F-9/46(B,I,H,EP,20060101,20051017,A,F) G06F-9/46(B,I,M,98,20060101,20051017,C)

Current IPC: G06F-9/46(B,I,H,EP,20060101,20051017,A,F) G06F-9/46(B,I,M,98,20060101,20051017,C)

## EPO

**Publication No.** EP 853279 A2 (Update 199832 B)

Publication Date: 19980715

**Verfahren und Geraet zur Steuerung von Zugriff auf Systembetriebsmittel**

**Method and apparatus for controlling software access to system resources**

**Procede et appareil pour commander l'accès par le logiciel à des ressources d'un système informatique**

Assignee: Sun Microsystems Inc., 901 San Antonio Road, Palo Alto, California 94303-4900, US (SUNM)

Inventor: Nagaratnam, Nataraj, 620 Euclid Avenue, Apt 1, Syracuse, New York 13210, US

Byrne, Steven B., 5269 Carter Avenue, San Jose, California 95118, US

Agent: Browne, Robin Forsythe, Dr., Urquhart-Dykes & Lord Tower House Merrion Way, Leeds LS2 8PA West Yorkshire, GB

Language: EN (21 pages, 8 drawings)

Application: EP 1997310659 A 19971230 (Local application)

Priority: US 1997780823 A 19970109

Designated States: (Regional Original) AL AT BE CH DE DK ES FI FR GB GR IE IT  
LI LT LU LV MC MK NL PT RO SE SI

Original IPC: G06F-9/46(A)

Current IPC: G06F-9/46(R,A,I,M,EP,20060101,20051008,A) G06F-  
9/46(R,I,M,EP,20060101,20051008,C)

**Original Abstract:**

Methods, systems, and software for installing and operating selected software applications on a client computer that is in communication with a server computer on a computer network are described. In one aspect of the present invention, a method for controlling the degree of access to operating system resources for a software program running on a computer that is running said operating system is provided. The degree of access to the operating system resources is defined for the software program, and at least one file including instructions for executing the software program is loaded on the computer from the server computer. The file is examined to determine the degree of system-level access available to the software program when the software program is being executed by the computer. The software program is executed, and a program instruction associated with the software program is intercepted when the software is being executed on the computer. A determination is then made to determine if the program instruction includes an operation that is outside of a degree of system-level access that is available to the software program, and if it is determined that the software program has permission to access system-level resources associated with the computer that are within the degree of system-level access available to the software, the program instruction is executed.

**Claim:**

- 1. A method for controlling the degree of access to operating system resources for a software program running on a computer which computer is running said operating system, the method comprising the steps of:
  - (a) defining said degree of access to said operating system resources for said software program;

- (b) examining at least one file associated with said software program to determine the degree of system-level access available to said software program when said software program is being executed by said computer;
- (c) executing said software program on said computer;
- (d) intercepting a program instruction associated with said software program when said software program is being executed on said computer;
- (e) determining if said program instruction includes an operation that is outside said degree of system-level access available to said software program; and
- (f) executing said program instruction when it is determined that said software program has permission to access system-level resources associated with said computer that are within the degree of system-level access available to said software program.

**Publication No.** EP 853279 B1 (Update 200665 E)

Publication Date: 20060920

**Verfahren und Gerat zur Steuerung von Zugriff auf Systembetriebsmittel**

**Method and apparatus for controlling software access to system resources**

**Procede et appareil pour commander l'accès par le logiciel à des ressources d'un système informatique**

Assignee: SUN MICROSYSTEMS, INC., 901 San Antonio Road, Palo Alto, California 94303-4900, US

Inventor: Nagaratnam, Nataraj, 620 Euclid Avenue, Apt 1, Syracuse, New York 13210, US

Byrne, Steven B., 5269 Carter Avenue, San Jose, California 95118, US

Agent: Browne, Robin Forsythe, Urquhart-Dykes & Lord LLP, Tower North Central, Merrion Way, Leeds LS2 8PA, GB

Language: EN

Application: EP 1997310659 A 19971230 (Local application)

Designated States: (Regional Original) DE FR GB NL

Original IPC: G06F-9/46(B,I,H,EP,20060101,19980525,A,F)

Current IPC: G06F-9/46(B,I,H,EP,20060101,19980525,A,F)

Claim:

1. Verfahren (400) zum Steuern des Grads des Zugreifens zu Betriebssystemressourcen für ein Softwareprogramm, das auf einem ersten Computer läuft, wobei der erste Computer das Betriebssystem ausführt, wobei das Verfahren Folgendes aufweist:
  - o Prüfen (710) mindestens einer Datei (360), die zu dem Softwareprogramm gehört, um den Grad des Zugreifens zu Betriebssystemressourcen, der für

das Softwareprogramm verfügbar ist, wenn das Softwareprogramm von dem ersten Computer ausgeführt wird, zu bestimmen, wobei zumindest eine Datei (360) den Grad der Zugriffsprivilegien (364) zu Betriebssystemressourcen, der für das Softwareprogramm verfügbar ist, wenn das Softwareprogramm auf dem ersten Computer ausgeführt wird, definiert,

- Ausführen (604) des Softwareprogramms auf dem ersten Computer;
- Abfangen (606) einer Programmanweisung, die zu dem Softwareprogramm gehört, während das Softwareprogramm auf dem ersten Computer ausgeführt wird,
- Bestimmen (612), ob die Programmanweisung eine Operation aufweist, die außerhalb des Grads des Zugreifens auf Betriebssystemressourcen, der für das Softwareprogramm verfügbar sind, liegt, und
- Ausführen (608) der Programmanweisung durch den ersten Computer, wenn bestimmt wird, dass das Softwareprogramm die Erlaubnis hat, auf die Betriebssystemressourcen, die zu der Programmanweisung gehören, innerhalb des Grads an Zugriffsprivilegien, die für das Softwareprogramm verfügbar sind, wenn es auf dem ersten Computer läuft, zuzugreifen.

1. A method (400) for controlling the degree of access to operating system resources for a software program running on a first computer, wherein said first computer is running said operating system, the method comprising:

- examining (710) at least one file (360) associated with said software program to determine the degree of access to operating system resources available to said software program when said software program is being executed by said first computer, wherein the at least one file (360) defines the degree of access privileges (364) to operating system resources available to said software program when said software program is being executed by said first computer;
- executing (604) said software program on said first computer;
- intercepting (606) a program instruction associated with said software program while said software program is being executed on said first computer;
- determining (612) if said program instruction includes an operation that is outside said degree of access to operating system resources available to said software program; and
- executing (608) said program instruction by said first computer when it is determined that said software program has permission to access the operating system resources associated with said program instruction within said degree of access privileges available to said software program when running on said first computer.

1. Procéde (400) pour contrôler le degré d'accès aux ressources d'un système d'exploitation pour un programme logiciel exécuté sur un premier ordinateur, dans lequel ledit premier ordinateur exécute ledit système d'exploitation, le procéde comprenant les étapes consistant à:
  - o examiner (710) au moins un fichier (360) associé au dit programme logiciel pour déterminer le degré d'accès aux ressources de système d'exploitation disponibles pour ledit programme logiciel lorsque ledit programme logiciel est exécuté par ledit premier ordinateur, dans lequel ledit au moins un fichier (360) définit le degré de priviléges d'accès (364) aux ressources de système d'exploitation disponibles pour ledit programme logiciel lorsque ledit programme logiciel est exécuté par ledit premier ordinateur;
  - o exécuter (604) ledit programme logiciel sur ledit premier ordinateur;
  - o intercepter (606) une instruction de programme associée au dit programme logiciel pendant que ledit programme logiciel est exécuté sur ledit premier ordinateur;
  - o déterminer (612) si ladite instruction de programme comprend une opération qui est à l'extérieur dudit degré d'accès aux ressources de système d'exploitation disponibles pour ledit programme logiciel; et
  - o exécuter (608) ladite instruction de programme par ledit premier ordinateur lorsqu'il est déterminé que ledit programme logiciel a la permission d'accéder aux ressources de système d'exploitation associées à ladite instruction de programme à l'intérieur dudit degré de priviléges d'accès disponibles pour ledit programme logiciel lorsqu'il est exécuté sur ledit premier ordinateur.

## Japan

Publication No. JP 10254783 A (Update 199849 E)

Publication Date: 19980925

### METHOD AND DEVICE FOR CONTROLLING ACCESS OF SOFTWARE TO SYSTEM RESOURCE

Assignee: SUN MICROSYST INC (SUNM)

Inventor: NAGARATNAM NATARAJ

BYRNE STEVEN B

Language: JA (63 pages)

Application: JP 199835321 A 19980109 (Local application)

Priority: US 1997780823 A 19970109

Original IPC: G06F-12/14(A) G06F-9/445(B)

Current IPC: G06F-12/14(R,A,I,M,JP,20060101,20060310,A,F) G06F-12/14(R,I,M,JP,20060101,20060310,C,F) G06F-

21/00(R,I,M,JP,20060101,20060310,C,L) G06F-  
21/22(R,I,M,JP,20060101,20060310,A,L) G06F-  
21/22(R,I,M,JP,20060101,20060310,C,L) G06F-  
21/24(R,I,M,JP,20060101,20060310,A,L) G06F-  
9/445(R,I,M,JP,20060101,20060310,A,L) G06F-  
9/445(R,I,M,JP,20060101,20060310,C,L) G06F-9/46(R,I,M,EP,20060101,20051008,A)  
G06F-9/46(R,I,M,EP,20060101,20051008,C)

## Korea

### **Publication No.** KR 551333 B1 (Update 200714 E)

Publication Date: 20060818

Assignee: SUN MICROSYSTEMS INC (SUNM)

Inventor: NAGARATNAM N

BYRNE S B

Language: KO

Application: KR 1998332 A 19980109 (Local application)

Priority: US 1997780823 A 19970109

Related Publication: KR 9870410 A (Previously issued patent)

Original IPC: G06F-15/16(B,I,H,KR,20060101,19980221,A,F) G06F-  
15/16(B,I,M,98,20060101,19980221,C,F)

Current IPC: G06F-15/16(B,I,H,KR,20060101,19980221,A,F) G06F-  
15/16(B,I,M,98,20060101,19980221,C,F)

### **Publication No.** KR 1998070410 A (Update 199953 E)

Publication Date: 19981026

Assignee: SUN MICROSYSTEMS INC (SUNM)

Language: KO

Application: KR 1998332 A 19980109 (Local application)

Priority: US 1997780823 A 19970109

Original IPC: G06F-15/16(A)

Current IPC: G06F-15/16(A)

## Singapore

### **Publication No.** SG 85092 A1 (Update 200214 E)

Publication Date: 20011219

Assignee: SUN MICROSYSTEMS INC (SUNM)

Inventor: NAGARATNAM N

BYRNE S B

Language: EN

Application: SG 19974729 A 19971230 (Local application)

Priority: US 1997780823 A 19970109

Original IPC: G06F-9/46(A) G06F-9/06(B) G06F-9/445(B) G06F-12/14(B) G06F-  
13/00(B) G06F-15/16(B) G06F-17/00(B)

Current IPC: G06F-9/46(R,A,I,M,EP,20060101,20051008,A) G06F-9/46(R,I,M,EP,20060101,20051008,C)

## Taiwan

**Publication No.** TW 368635 A (Update 200034 E)

Publication Date: 19990901

Assignee: SUN MICROSYSTEMS INC; US (SUNM)

Language: ZH

Application: TW 1998100158 A 19980107 (Local application)

Priority: US 1997780823 A 19970109

Original IPC: G06F-9/06(A)

Current IPC: G06F-9/06(A)

## United States

**Publication No.** US 6317742 B1 (Update 200173 E)

Publication Date: 20011113

**Method and apparatus for controlling software access to system resources.**

Assignee: Sun Microsystems, Inc., Palo Alto, CA, US

Inventor: Nagaratnam, Nataraj, Syracuse, NY, US

Byrne, Steven B., San Jose, CA, US

Agent: Beyer Weaver & Thomas

Language: EN

Application: US 1997780823 A 19970109 (Local application)

Original IPC: G06F-17/30(A)

Current IPC: G06F-9/46(R,A,I,M,EP,20060101,20051008,A) G06F-9/46(R,I,M,EP,20060101,20051008,C)

Original US Class (secondary): 70710 713200 7079

Original Abstract: Methods, systems, and software for installing and operating selected software applications on a client computer that is in communication with a server computer on a computer network are described. In one aspect of the present invention, a method for controlling the degree of access to operating system resources for a software program running on a computer that is running said operating system is provided. The degree of access to the operating system resources is defined for the software program, and at least one file including instructions for executing the software program is loaded on the computer from the server computer. The file is examined to determine the degree of system-level access available to the software program when the software program is being executed by the computer. The software program is executed, and a program instruction associated with the software program is intercepted when the software is being executed on the computer. A determination is then made to determine if the program instruction includes an operation that is outside of a degree of system-level access that is available to the software program, and if it is determined that the software program has permission to access system-level resources associated with the computer that are within the degree of system-level access available to the software, the program

instruction is executed.

Claim:

1. A method for controlling the degree of access to operating system resources for a software program running on a first computer, wherein said first computer is running said operating system, the method comprising:
  - o examining at least one file associated with said software program to determine the degree of system-level access available to said software program when said software program is being executed by said first computer, wherein the software program is constructed using said at least one file;
  - o executing said software program on said first computer;
  - o intercepting a program instruction associated with said software program while said software program is being executed on said first computer;
  - o determining when said program instruction includes an operation that is outside said degree of system-level access available to said software program; and
  - o executing said program instruction when it is determined that said software program has permission to access system-level resources that are within said degree of system-level access available to said software program.